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**REMARKS**

This amendment is intended as a full and complete response to the final Action mailed June 6, 2003. In that Action the Examiner notes that claims 11-31 are pending and that claims 11-31 stand rejected. Claims 11-31 continue unamended.

In view of the following discussion, the applicants submit that none of the claims now pending in the application are non-enabling, anticipated, or obvious under the respective provisions of 35 U.S.C. §112, §102, and §103. Thus, the applicants believe that all pending claims are allowable.

It is to be understood that the applicants are not acquiescing to the Examiner's statements as to the applicability of the prior art of record to the pending claims.

**REJECTION OF CLAIMS UNDER 35 U.S.C. §103(a)****Claims 11-14 and 17-19**

The Examiner has rejected claims 11-14 and 17-19 under 35 U.S.C. §103(a) as being unpatentable over Adams, U.S. Patent No. 6,044,396 (Adams) in view of Mao et al., U.S. Patent 6,459,427 (Mao). Applicants respectfully traverse those rejections.

Applicants' independent claim 11 recites:

"In an information distribution system comprising server equipment providing content to subscriber equipment via a high speed asynchronous serial interface (HS-ASI) communications channel, server apparatus comprising:

    a switch, for multiplexing each of a plurality of content streams provided by respective server modules to produce an output stream adapted for transport via said communications channel;

    said switch receiving non-content data from a data source, formatting said received data for use by said communication channel, and responsively multiplexing said formatted non-content data into said output stream on a bandwidth availability basis." (Emphasis added.)

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F2d. 1382, 1385,

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165 USPQ 494 496 (CCPA 1970), MPEP 2143.03. Moreover, the mere fact that a prior art structure could be modified to produce the claimed invention would not have made the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992); *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Nowhere in Adams and Mao, when taken either individually or in any permissible combination, is there any teaching, suggestion, or incentive to include receiving non-content data for use by a communication channel, formatting that data, and multiplexing the formatted non-content data ... on a bandwidth availability basis.

Adams discloses a method of utilizing the available bit rate in a bit rate constrained system. As shown in its Figure 2, the Adams system multiplexes application data from an application server 202 via a network controller 204 together with video data from video encoders 206 that are retrieved by media servers 200. The Adams system multiplexer 208 multiplexes data using a format in which video signals have a higher priority because lost or delayed video will have a noticeable effect, while application or control information is usually not as sensitive to packet delay or loss. In particular, Adams teaches multiplexing all the data in video buffers first and then, when the video buffers are empty, sending application data, reference Adam, column 5, lines 2-7.

Mao discloses a head-end broadcast system in which internet data is received and subsequently transmitted through a digital TV network to receivers after mapping the internet data into MPEG streams. The mapped Internet MPEG stream is then combined with digital video streams.

Applicants' invention provides for formatting non-content data for use by a communication channel, and subsequently multiplexing that formatted non-content data with content streams such that the formatted non-content data is multiplexed on a bandwidth availability basis. Nowhere in Adams is there any teaching or suggestion of formatting non-content data for use by a communication channel as claimed in pending claim 11. Consequently, Adams also does not teach or suggest multiplexing such communication channel-formatted-data-with content data on a bandwidth availability basis. While Mao may be highly useful, Mao also does not teach or suggest formatting non-content data for use by a communication channel,

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and thus also does not teach or suggest multiplexing content data with formatted non-content data on a bandwidth availability basis.

Since Mao does not bridge the substantial gap between the Adams reference and the applicants' invention, the combined references fail to teach the applicants' invention as a whole. As such, the applicants submit that claim 11 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 12-14 and 17-19 depend, either directly or indirectly, from independent claim 11 and recite additional features thereof. As such, and for at least the same reasons discussed above, the applicants submit that those dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the rejections of claims 11-14 and 17-19 under 35 U.S.C. §103(a) be withdrawn.

**Claims 11-22, 24-27 and 29-31**

The Examiner has rejected claims 11-22, 24-27 and 29-31 under 35 U.S.C. §103(a) as being unpatentable over Arazi et al. (U.S. Patent No. 5,966,120, hereinafter "Arazi") in view of Son et al. (U.S. Patent No. 6,240,553, hereinafter "Son"). The applicants respectfully traverse those rejections.

Regarding claims 11-19, claim 11 is recited above with emphasis added. The emphasized recitations, together with the legal arguments provided when discussing the 35 U.S.C. §103(a) rejections based on Adams and Mao, also apply to the 35 U.S.C. §103(a) rejections of claims 11-19 based on Arazi et al. and Son et al.

Arazi discloses a method of achieving a constant bit rate (CBR) distribution of content when at least some of the content being distributed is comprised of variable bit rate (VBR) data. Arazi specifically teaches sending "auxiliary data of a *general character*, to one or more receivers." (Emphasis added, reference Arazi beginning on the last line of column 3.) The auxiliary data is added where "fill packets" would have been used to create a CBR data stream. Son discloses a method of providing a scalable environment for "in-band" (such as video content) and "out-band" (other content) communication channels. The scalable environment is such that it can easily be expanded or contracted at low cost according to demand.

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Nowhere in Arazi and Son, when taken individually or in combination, is there any teaching, suggestion, or incentive to include receiving non-content data for use by a communication channel, formatting that data, and then multiplexing the formatted non-content data ... on a bandwidth availability basis.

Since Arazi and Son, alone or when combined, fail to teach the applicants' invention defined by claim 11, the applicants submit that claim 11 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 12-19 depend, either directly or indirectly, from independent claim 11 and recite additional features thereof. As such, and for at least the same reasons, the applicants submit that those dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the 35 U.S.C. §103 rejections of claims 11-19 based on Arazi and Son be withdrawn.

Claims 20-22 and 24-27 also stand rejected over Arazi and Son. Applicants' independent claim 20 recites:

"20. Apparatus, comprising:  
a switch, for receiving content data streams from each of a plurality of server modules and multiplexing said content data streams to form an output stream transmitted along a high speed asynchronous serial interface (HS-ASI) communications channel, each of said content data streams comprising a plurality of extents, each of said extents defining a respective content portion;  
a format converter, for formatting non-content data for use by said communications channel; and  
a controller, for receiving said non-content data and for causing said switch to insert corresponding HS-ASI formatted non-content data into said output stream." (Emphasis added.)

The previous discussions of Arazi and Son, and the legal arguments provided with regard to the 35 U.S.C. §103(a) rejections based on Adams and Mao also apply to the 35 U.S.C. §103(a) rejections of claims 20-22 and 24-27 based on Arazi and Son.

Nowhere in the combination of Arazi and Son is there any teaching, suggestion, or incentive to include a format converter for formatting non-content data

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for use by a communications channel. Consequently, there is no teaching or suggestion to have a controller that causes a switch to insert corresponding HS-ASI formatted non-content data into an output stream.

Since Arazi and Son, alone or when combined, fail to teach the applicants' invention defined by claim 20, the applicants submit that claim 20 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 21-22 and 24-27 depend, either directly or indirectly, from independent claim 20 and recite additional features thereof. As such, and for at least the same reasons, the applicants submit that those dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the 35 U.S.C. §103 rejections of claims 20-22 and 24-27 based on Arazi and Son be withdrawn.

Claims 29-31 also stand rejected over Arazi and Son. Applicants' independent claim 29 recites:

"29. A method, comprising:  
multiplexing a plurality of content stream portions to produce an output stream, said output stream being adapted to a high speed asynchronous serial interface (HS-ASI) communications channel;  
transmitting said output stream via said HS-ASI channel;  
determining if said HS-ASI channel has associated with it a bandwidth utilization level below a threshold level; and  
inserting, into said output stream, HS-ASI channel formatted non-content data in response to available HS-ASI channel bandwidth."  
(Emphasis added.)

The previous discussions of Arazi and Son, and the legal arguments provided with regard to the 35 U.S.C. §103(a) rejections based on Adams and Mao also apply to the 35 U.S.C. §103(a) rejections of claims 29-31 based on Arazi and Son.

Nowhere in the combination of Arazi and Son is there any teaching, suggestion, or incentive to include inserting into an output stream HS-ASI channel formatted non-content data in response to available HS-ASI channel bandwidth.

Since Arazi and Son, alone or when combined, fail to teach the applicants' invention defined by claim 29, the applicants submit that claim 29 is not obvious and

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fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 30-31 depend, either directly or indirectly, from independent claim 29 and recite additional features thereof. As such, and for at least the same reasons, the applicants submit that those dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the 35 U.S.C. §103 rejections of claims 29-31 based on Arazi and Son be withdrawn.

**Claims 11-27 and 29-31**

The Examiner has rejected claims 11-27 and 29-31 under 35 U.S.C. §103(a) as being unpatentable over Arazi and in view of Mao. Applicant traverses those rejections.

The previous discussions of Arazi and Mao, and the legal arguments provided with regard to the 35 U.S.C. §103(a) rejections based on Adams and Mao, also apply to the 35 U.S.C. §103(a) rejections of claims 11-27 and 29-31 based on Arazi and Mao.

As discussed previously, nowhere in Arazi and Mao is there any teaching, suggestion, or incentive to include receiving non-content data for use by a communication channel, formatting that data, and multiplexing the formatted non-content data ... on a bandwidth availability basis (reference claims 11-19); nor is there any teaching, suggestion, or incentive to include a format converter for formatting non-content data for use by a communications channel or a controller that causes a switch to insert corresponding HS-ASI formatted non-content data into an output stream (reference claims 20-27), nor is there any teaching, suggestion, or incentive to include inserting into an output stream HS-ASI channel formatted non-content data in response to available HS-ASI channel bandwidth (reference claims 29-31).

Since Arazi and Mao, alone or when combined, fail to teach the applicants' invention defined by claims 11, 20, or 29, the applicants submit that claims 11, 20, and 29 are not obvious and fully satisfies the requirements of 35 U.S.C. §103 and are patentable thereunder. Furthermore, claims 12-19, 21-27, and 30-31 depend, either directly or indirectly, from claims 11, 20, or 29 and recite additional features

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thereof. As such, and for at least the same reasons, the applicants submit that those dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the 35 U.S.C. §103 rejections of claims 11-27 and 29-31 based on Arazi and Mao be withdrawn.

**Claim 28**

The Examiner has rejected Claim 28 under 35 U.S.C. 103(a) as being unpatentable over Arazi in view of Mao, and in further view of Gotwald U.S. Patent No. 5,987,518 (hereinafter Gotwald). Applicants traverse those rejections.

The previous discussions of Arazi and Mao, and the legal arguments provided with regard to the 35 U.S.C. §103(a) rejections based on Adams and Mao, also apply to the 35 U.S.C. §103(a) rejection of claim 28.

Gotwald discloses a method of sending data formatted in one format (such as internet data) over a digital television broadcast network that uses a second format (such as MPEG2). The data formatted in the first format is encapsulated in a data stream for distribution in the second format.

Nowhere in Gotwald, taken alone or in combination with Arazi and/or Mao, is there any teaching, suggestion, or incentive to include a format converter for formatting non-content data for use by a communications channel. Nor does Gotwald teach or suggest a controller for receiving said non-content data and for causing said switch to insert corresponding HS-ASI formatted non-content data into an output stream. However, such features are recited in claim 20, the independent claim from which claim 28 depends.

Since Arazi, Mao and Gotwald fail to teach the applicants' invention defined by claim 20, its dependent claims 28, which recites additional features is allowable. Therefore, the applicants respectfully request that the 35 U.S.C. §103 rejection of claim 28 be withdrawn.

As noted in a previous response, Gotwald discloses the prioritization of messages according to at least one of a source address, a destination address, a data type and a connection type. (See Gotwald at column 2, lines 19-22).

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"Priority can be based, for example, on the source address for the IP data, the destination IP address, the data type and/or the connection type. The use of source addressing to establish priority is useful in a multicast service, to enable certain services to have a higher priority than others. Destination IP addresses can be used to establish priority based on a level of service purchased by a customer. For example, customers can be offered a high speed, priority Internet access service which will be faster than the standard service purchased by other customers for a lower fee. The IP address of each customer will be used to indicate the priority level depending on the level of service purchased by the customer.) (See Gotwald at column 4, line 55 to column 5, line 6).

Arazi, Mao, and Gotwald are silent with respect to the use of predicted bandwidth to assign priority to non-content data for insertion into the output stream. In contrast, Applicants' claim 28 positively recites:

"The apparatus of claim 27 wherein said predicted bandwidth availability is used to adapt a priority assigned to said non-content data to be inserted into said output stream."

Applicant respectfully submits that Arazi, Mao, and Gotwald either singularly or in any permissible combination fail to contain the unobvious features of claim 28. At least for the reasons given above, Applicant respectfully submits that the references do not render Applicant's invention as defined by claim 28 obvious. Therefore, the applicants respectfully request that the 35 U.S.C. §103 rejection of claim 28 be withdrawn.

#### CONCLUSION

Thus, the applicants submit that all the claims presently in the application are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone either John M. Kelly, Esq. or Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

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Respectfully submitted,

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